

METHOD USING SECONDARY ORIENTATION TO
TUNE BUCKET NATURAL FREQUENCY

ABSTRACT OF THE DISCLOSURE

5 Tuning of turbine bucket torsional and stripe mode natural frequencies
can be effected without altering any turbine bucket physical features, such as
weight and/or shape, and without affecting flexure frequencies. The tuning of
certain turbine bucket natural frequencies serves to avoid detrimental blade
resonance, thus improving the reliability of a gas turbine. The method
includes investment casting the turbine bucket with a single crystal alloy, and
10 tuning the natural frequency of the turbine bucket without modifying physical
features of the turbine bucket by placing a crystal seed along a desired
direction according to a relative orientation of an engine axial direction.